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TRAIL & Landscape

Vol 3 No 4

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THE OTTAWA FIELD-NATURALISTS' CLUB

Editor: Mrs. G. R. Hanes
18 Briarcliffe Drive
Ottawa 9, Canada

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WHAT IS THE PURPOSE OF GATINEAU PARK?

The following article stems from an interview in June 1969 between Mr. Alan Ede, Director of Parks and Grounds, National Capital Commission, and Mrs. Sheila Thomson. Mr. Ede courteously made time for the interview in the midst of a particularly busy schedule, and patiently provided the answers to a long series of questions. Unfortunately, there is room to publish only part of the dialogue here. Mrs. Thomson prefaces the article with the following remarks: "The questions and comments below are entirely my own. They do not necessarily reflect attitudes of the Ottawa Field-Naturalists' Club. If the questions appear to be suspiciously probing, they result from persistent rumours and growing indications that less and less of this Park is to be preserved as a natural area, and more and more is to be used for developments which can only erode Park values."

MRS. THOMSON: It is our understanding that the lands of Gatineau Park were bought by the Government of Canada for the purpose of preserving a small wilderness-type park close to the National Capital. What legislation is there to ensure that this land will not be used for purposes other than that of a wilderness-type park?

MR. EDE: Since this question expresses such a beautiful thought I am almost tempted to invent an answer rather than disillusion you. The simple fact of the matter is that there was no such thought behind the original purchase of the land. The depression of the early thirties which resulted in wholesale unemployment created a tremendous demand for cheap fuel. Wholesale cutting of hardwood for fuel was undertaken in the area now encompassed by Gatineau Park. Hundreds of acres of the very finest woodlands were cleared of trees. In many cases every tree was taken regardless of size, leaving hundreds of acres of stumps and slash.

In an effort to prevent this indiscriminate cutting, in 1934 a number of private citizens organized what was known as the Federal Woodlands Preservation League. This League urged the acquisition by the Government of up to 25,000 acres of woodland nearest to Ottawa. By the beginning of the war about 16,000 acres had been purchased....

Briefly then, the purchase was intended to help stop an abuse rather than to create something. Since that time there have been a number of recommendations on how the land might be used and developed but these have varied so widely that none could be used in its entirety.

Meanwhile Gatineau Park remains simply as a portion of the Greenbelt and comes under the protection of the National Capital Commission Property and Traffic Regulations which prohibit the destruction or removal of natural resources.

MRS. THOMSON: I think that this answer will generate more than just disillusionment. Many Canadians will be shocked to learn that Gatineau Park is simply a portion of the Greenbelt, that THERE IS NO ACT SETTING IT ASIDE AS A PARK, AND IN FACT NO LEGISLATION WHATSOEVER TO PROTECT IT AS A NATURAL PARK.

In view of your outline of the history and intent of the purchase of this land, I feel impelled to point out that the "beautiful thought" expressed above is not just a flight of imagination on my part.

(1) The Todd Report of 1903 recommended the setting aside of two large natural parks, one along the Gatineau River, the other on both sides of Meach Lake.

(2) The Holt Commission in 1915 recommended that this area "....be secured as a national park. Here, at the very door of the capital, should be preserved for all time, a great area in the state of nature." There is no room for misinterpretation here.

(3) The Cauchon Report, 1922, recommended: "The spur of the Laurentian Hills which reaches down to the shore of the Ottawa River...should be made a National Park...widening out as it extends northerly..."

(4) The Greber Plan of 1950 (which forms the basis of NCC's Master Plan for the National Capital Area) designates the land in question as "Gatineau National Park" and refers repeatedly and with emphasis to the need for "serious protective measures" to safeguard Gatineau Park as a natural area.

(5) Finally, quoting the National Capital Commission itself on Gatineau Park (1965): "Dreams of a huge unspoiled wilderness park within minutes of the National Capital date back to 1903, resulting from the appeal of interested, public-spirited citizens to Sir Wilfred Laurier to have the Government purchase the entire region and preserve it in its natural state for future generations, safe from inroads of private exploitation, logging and careless campers. The project was started in the late thirties..."

Now, in 1969, official statements to the effect that Gatineau Park was not intended as a nature reserve in the first place suggest that there has been a radical change of concept on the part of those who are in a position to direct policy.

MR. EDE: The quotations which you have given from these other recommendations are getting away from the original question. Give me enough time and I can find you a thousand and five reports that have been made to the Government and never acted upon. The simple fact remains that the Government acted on only one recommendation and that was the one from the Federal Woodlands Preservation League which was attempting to save the hardwoods which were being cut for fuel. The situation today would have been quite different if action had been taken on any of the other reports and recommendations.

MRS. THOMSON: Is there any formal statement of Park policy (such as exists for our National Parks), as a guide for those who make decisions about the management and future of Gatineau Park?

MR. EDE: Because of the form in which the question is asked I am obliged to answer "no". There is no formal statement of Park policy insofar as Gatineau Park is concerned but this does not mean that policy is totally lacking. Over the years there have been a considerable number of policy decisions made to cover specific problems and these in effect have established precedents which are used in dealing with current problems.

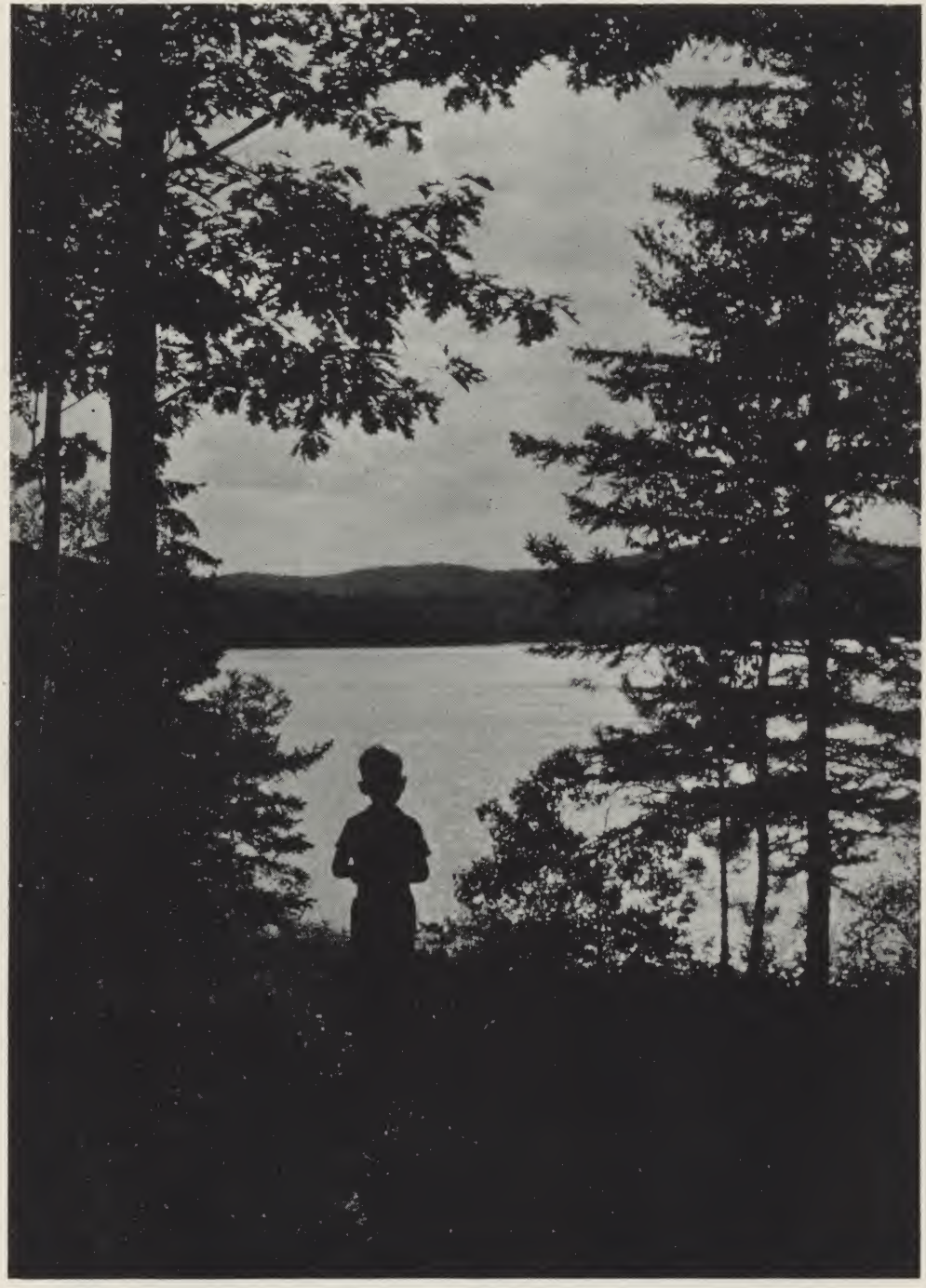
MRS. THOMSON: I am aware that some of the problems facing park authorities would require the wisdom of Solomon himself. However, I was not referring to the

resolving of these day-to-day problems, but rather to the existence of an underlying philosophy in decision-making. What is the purpose, what are the objectives of the Park? What guidelines are used by the decision-makers as to whether developments in the Park are in keeping with its original purpose? Do plans for preservation, or, alternatively, for development, change with changing personnel?

MR. EDE: When you phrase the question this way, I can only answer simply that there never has been a comprehensive statement of underlying philosophy. This is most unfortunate and it is something we are trying desperately to correct at this time. However, it is an uphill battle as a number of usages are already firmly established in the Park. Nevertheless, I firmly believe that we will be successful and I hope it will not be too long before a public statement can be made.

As for plans changing with changing personnel, there is no question whatever that this occurs. Any procedure or policy must be interpreted before it can be put into practical use. The implication of the question seems to be that former personnel did everything right and newer members of the staff cannot help but do everything wrong. Have you stopped to consider that quite possibly the converse of this is true? It must also be borne in mind that parks in this day and age are being called upon to withstand pressures which could not be imagined ten years ago. Some years ago, the saturation point, it was thought, had almost been reached when the total visitor attendance to all American National Parks was approaching the 5 million mark. These same parks are now being called upon to cater to some 88 million visitors a year. Bringing this closer to home, it was not too long ago that a thousand visitors a day to Gatineau Park was considered to be a crowd. Sixteen to seventeen thousand visitors a day is now quite common.

MRS. THOMSON: Now I must accuse you of drawing false inferences from my question. I think it is not a matter of deciding who is "right" or who is "wrong" but rather of recognizing what the basic objectives of Gatineau Park are. Then everything else will fall into place. Any formal statement of Park objectives, even one which may be subject to differing interpretations, is preferable to having no stated objectives at all.



IN GATINEAU PARK photo by H.A. Thomson

The problem of overcrowding in American Parks today will be the problem in Canadian Parks tomorrow. However I wonder whether it occurs to park authorities that some of the overcrowding in parks can be attributed to park policy. There is no reason why every park must furnish mob-type recreation. Many people who visit parks are seeking quietness and natural beauty, relief from the crowds, noise, cars, and artificial trappings of the modern world. In Gatineau Park, where there is crowding it has followed the introduction by NCC of some crowd-pleasing feature.

Would not the people who want such things as paved roads, public beaches, and campgrounds with modern conveniences be just as happy if this type of recreation were provided along the Gatineau and Ottawa Rivers, or in the wooded hills east of the Gatineau? Why should the integrity of the Park be eroded for the sake of those who have not yet come to recognize the value of natural areas, or who fail to grasp the finality, in our age, of destroying a natural area? Here again, of course, we run into the question of basic objectives.

MR. EDE: Along the lines that you suggest I am sure that people would be just as happy with public beaches, campgrounds, etc. in some other area. However, this would involve the acquisition of additional land and if this land were acquired in the area east of the Gatineau River, as you suggest, we would run into exactly the same situation as we have in Gatineau Park. No doubt there are locations in this area which would warrant a high degree of preservation. Where then should the line be drawn?.....

If I may inject a personal opinion at this point I would like to say that it is my hope that the day is not too distant when all park authorities, be they Federal, Provincial or Municipal will work together in order to provide the types of facilities and services which are necessary to meet the requirements of the population's increasing leisure time....

Also, it is absolutely essential that we lay to rest the concept that all parks should be all things to all people. There should be a degree of specialization based on the natural resources of the area.

It should not be too difficult to educate the public along these lines. After all a person does not go to a dentist to get his appendix out or go to a restaurant and expect to buy shoes. Why then should he expect to go into a wilderness or semi-wilderness area and expect to find drive-in theatres, midway-type attractions or in fact any type of recreational facility which is foreign to the environment?

MRS. THOMSON: It seems incongruous that Gatineau Park should be managed by such unlikely departments as Public Works and now Regional Development. Could not the National Parks Branch be delegated to manage Gatineau Park on behalf of the National Capital Commission?

MR. EDE: From my previous experience with the National Parks Service, I think I would be quite safe in saying that Gatineau Park would not meet the specifications which are laid down for a National Park....

The first part of this question certainly suggests that there is a grave misunderstanding concerning the organization of the National Capital Commission. The Commission never was part of Public Works nor is it now part of Regional Development. The National Capital Commission is a Crown Corporation charged with the development and beautification of the National Capital. It is an independent body and its only association with the regular government departments is that there must be a minister through whom the Commission can report to Parliament.

Under present organization, the Planning and Design Branch is responsible for deciding on land use. Thus it has responsibility for producing a long-range development plan for Gatineau Park. I can assure you that this Branch is composed of a group of dedicated individuals who take their jobs quite seriously. However, in evaluating their efforts it is necessary to keep in mind that their responsibility covers the whole of the National Capital Region and not merely Gatineau Park. Similarly their responsibility is to all people and not merely to one small segment. Their decisions cannot cater to the wishes of individual groups such as swimmers or skiers or campers or naturalists or foresters or hikers or horsemen but rather decisions must be for the common good.

MRS. THOMSON: No doubt it is humanly impossible to satisfy everyone. Yet, it is difficult to see how decisions can be arrived at "for the common good" in Gatineau Park, when no one seems to know what the objectives of the Park are.

Is Gatineau Park nothing more than a name applied to an attractive part of the Greenbelt? We find this hard to accept. It is especially alarming when coupled with rumours about future developments in the Park. A public statement by the National Capital Commission outlining precisely the status and the objectives of Gatineau Park is now due to all Canadians. Certainly thousands share the belief that Gatineau Park is a Federal Park, properly protected by legislation, to be passed on to future Canadians as part of their natural heritage.

REPRINTED:

A Guide to the Geology of the Ottawa District by Alice Wilson...price $1.25 plus 15¢ postage

ALSO AVAILABLE:

A Guide to the Geology of the Gatineau-Lievre District, by D. Hogarth..$1.00 plus 15¢ postage

BACK VOLUMES OF TRAIL & LANDSCAPE

Back volumes of T & L may be purchased at $4.00 a volume plus postage. FOR CLUB MEMBERS ONLY, until January 1, 1970, back volumes will be available at $3.00 plus postage. After that date, there will be no reduction in price.

The above publications are available from the Business Manager of OFNC, Box 3264, Postal Station C, Ottawa 3.

...worth two in the bush?

A CAPTURED SAW-WHET OWL

story and photo by Dan Brunton

On September 29, 1968, I had the opportunity to watch, photograph, and capture a Saw-whet Owl that was found by A. Sheppard in a small woods in the west end of Ottawa. Though we watched it throughout most of the day, the owl showed almost no interest in our presence. For that matter, even when captured it was only mildly excited!

Although at first inaccessible in a black locust grove, the animal moved into a low dogwood thicket, thus permitting its capture. Theoretically, one distracts the animal with one hand while capturing it with the unwatched one. However, this bird didn't follow these rules, and completely ignored the distraction hand. Actually, it ignored the distraction so completely that I was able to touch its bill and eventually snatch it up with that hand!

The result of the capture is the accompanying photograph. The unconcern of the creature is obvious. So too are its very beautiful markings. It should be stated that the bird was immediately released upon the completion of the photography (all told about five minutes). In this way, neither the owl nor we suffer, and a lasting reminder is secured.

Extreme caution must be used when handling such animals. Although it is a predator, it is still very delicate and fragile and could easily be hurt. So too could its captor, as its talons are extremely thin and sharp. Caution aids both the animal and the observer.

PINK LADYSLIPPERS

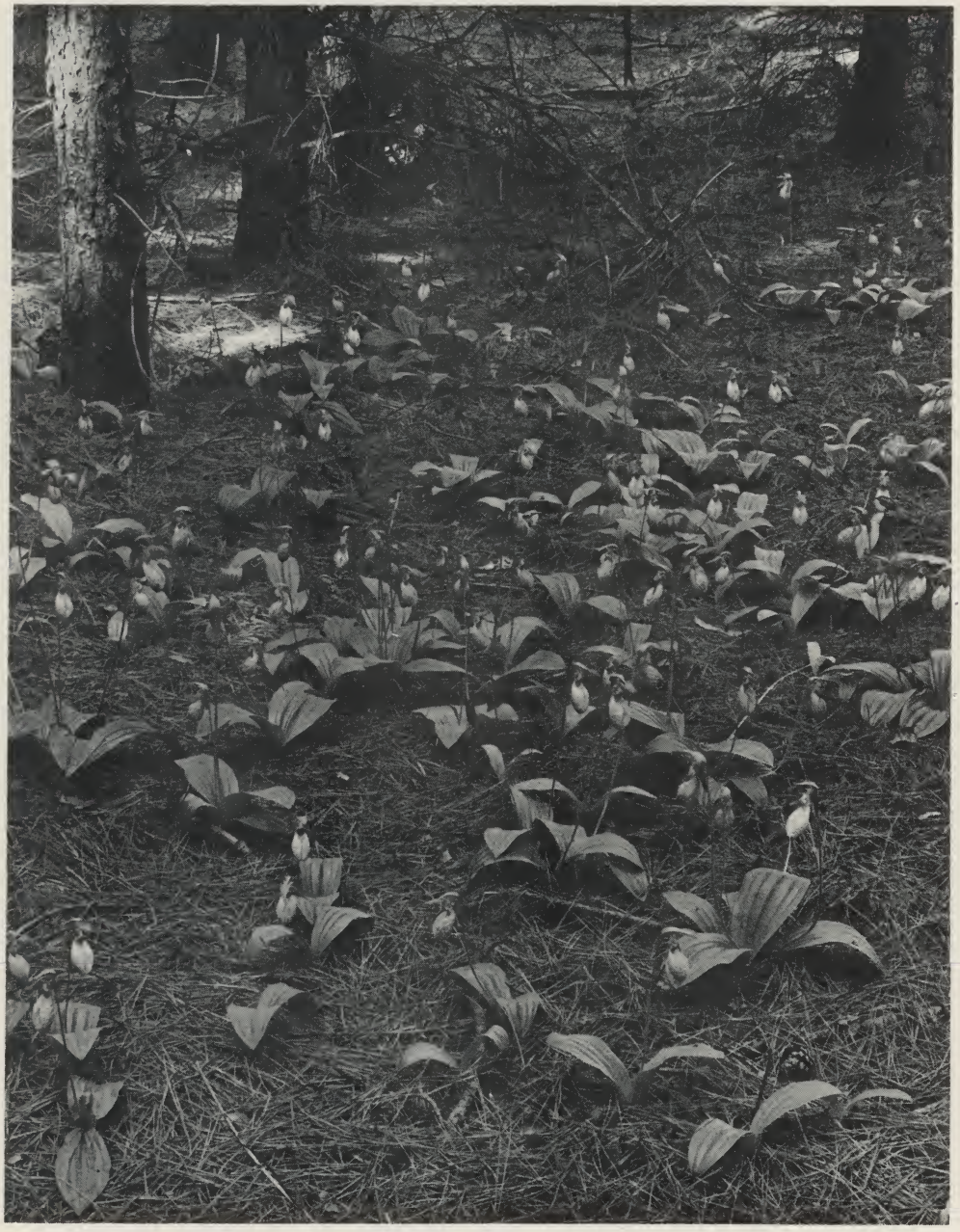
The excursion on June 1 to view the Ladyslipper orchids (Cypripedium acaule) in Larose Provincial Forest was an exciting trip for over fifty persons under Ed Greenwood's expert direction. The profusion of blooms over acres in the pine plantations held one completely in admiration of nature's beauty. We here surely witnessed the greatest concentration of the species in the district, perhaps in all Canada! A few white blooms, albino forms, were found.

This land is a deep sand, deposited by the wind along the ancient beach of Champlain Sea. It had been farmed in the early days of settlement, but being found unproductive, was soon abandoned. The government reclaimed it by planting it out to pines -- Scotch, Red and Jack -- and now these are of near-merchantable size, thirty-six years old by whorl count, and in so dense a stand that practically nothing grows beneath, except some club-moss -- and the orchids. Seeds drifting in on the wind must have found the habitat just to their liking, and the plants flourished better than if under natural competition.

The seeds, as noticed in the old capsules, are very small, even microscopic, and surrounded by a loose jacket of dry cells are given buoyancy to drift afar. They develop and germinate only when they land on special terrain, seep into the acid humus, and contact the proper fungal filaments. According to Larry Sherk, who has conducted tests on cultivation of our wild orchids, this species tops the list of those most difficult to transplant. Although not injured by picking the bloom if basal leaves are left, this plant is sure to die out in a year or two if moved to a fertile garden soil. The trouble probably lies in its thick and brittle roots, co-habited by a fungus, which cannot adapt to other soils, and when even slightly injured, the fungus takes the upper hand and parasitizes the orchid.

It is most fortunate that this land has been so managed by the Department of Lands and Forests as to make it both productive and enjoyable. The fire-control roads provide ideal observation trails for use of naturalists, and we should mutually assist with the prevention of fire and mis-use of the forest, and in the conservation of the orchids.

W. G. Dore



PINK LADYSLIPPERS IN LAROSE FOREST

1 June 1968 E.W. Greenwood

SIGHTING OF A BLUE GROSBEAK AT SHIRLEY BAY

by John E. Macdonald

On Monday May 19, 1969, my son Robby, aged six, called me to our front window saying, "Dad, there's a bluebird on the patio." Having spent most of the early morning looking for warblers, I immediately thought that an Indigo Bunting had arrived, and at first glance I assumed that I was correct.

However, as I watched I was struck with the efficiency with which this bird was smashing and eating the weed seeds he was feeding upon. If you remember how effective an Evening Grosbeak can be when he tears into sunflower seeds, you couldn't help but see the resemblance in method that this magnificent "bluebird" was using to do the same thing. As he worked his way across the patio I was able to put 7-power binoculars on him and I realized that I had something other than the Indigo Bunting. The rusty wing bars made me hop to Peterson's Field Guide, and there was no doubt. He was indeed a Blue Grosbeak!

He stayed well over an hour hopping and bending dandelion plants which proliferate on our patio. (I have been hesitant to eradicate them ever since, hoping that he would return.) He is a deeper darker blue than the Indigo and has the unmistakable "gros" beak. A group of four or five goldfinch, feeding along with him, gave me the advantage of size comparison. He is smaller than a robin but larger, I would say, than a cowbird. The brown wing bars are quite evident; two of them predominate, and I noticed other brownish streaks down the wing, not necessarily the same as the colour plate in Peterson. There was a black definition around the beak. As he remained on the patio for so long, I had more than enough time to observe these features. His feet were black but appeared much longer than Peterson shows. He did not at any time run; he hopped, and would pounce on a dandelion to bend it over much in the same manner as a goldfinch.

After being startled by a robin, he flew to a Chinese elm hedge and thoroughly inspected the bark of a dead member. He stayed a short while until a wren

chased him into a small dead thicket in the next yard. (The wren is nesting right now and hates everyone.) Then he flew again and I could not track him further.

It would be gratifying indeed if I could claim this sighting officially. I understand that a find such as this must be confirmed by an ornithologist, or a recognized expert in bird identification. However, I am convinced; with the time I had, and at such a short distance (10 to 20 feet), there seems to me no way that I could be mistaken. I spoke to Ron Pittaway who visited me at home and he too is convinced of the veracity of the observation. As Pittaway said, "Birds have wings and they can go anywhere." This is the type of thing that makes birdwatching highly exciting and satisfying to those who pursue it.

* ** *** ** *

JOHN KERR McMORINE, 1842-1912, CLERGYMAN AND BOTANIST
by Edna G. Ross, Pakenham, Ontario, 1969.
20 pp. $1 (Private printing, quantity limited)

Miss Ross pays tribute in her booklet to a distinguished preacher and botanist who grew up near Almonte, and at one time served a number of parishes in Renfrew and Lanark Counties. Included in the account are delightful glimpses of life in Ontario as it was a hundred years ago, and reports of trips to locations our club members still frequent.

The study of plants was for John Kerr McMorine a lifelong source of enjoyment and interest. His collection, now in herbaria at Queen's University and the Canada Department of Agriculture, numbers some 1200 specimens representing 780 species, the earliest dated 1861. Although Mr. McMorine does not appear to have published his findings, other botanists, such as Bradish Billings and John Macoun, referred to his records. A list of the ferns and orchids he collected appears on the last page of the booklet.

Miss Ross is a member of our club, well known for her work on the plants and birds of the Almonte-Pakenham area. We are indebted to her for this account of one of our early botanists. Mary E. Stuart

Strange Ones

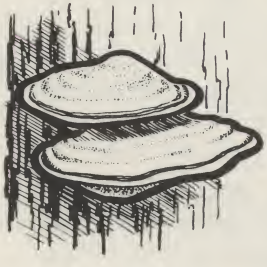
Sheila Thomson

In the fall, and especially after wet weather, an old woods that has been left undisturbed will bring forth a procession of strange plant forms, the fruiting bodies of the unseen fungi. Displaying an astonishing array of colours, shapes, and forms, many are so strange or so conspicuous as to arouse the curiosity of even the most casual observer.

Fall outings have impressed upon us that many people would like to be able to put a name on some of these oddities of the plant world. With these people in mind, and to add to your enjoyment of the woods this fall, here is a capsule guide to some of the more common kinds of fungi you are likely to encounter. The illustrations have been provided by Anne Hanes. (If you would never mistake polypore for bolete, please turn to the next article. This is not for you.)

Keep in mind that fungi are plants..spore plants.. plants lacking chlorophyll. The conspicuous form that seems to have appeared suddenly overnight may, in fact, have done just that, for the mushroom or puffball that pops up is not the fungus plant itself, any more than the apple is the plant in the case of the fruit-bearing tree. (The fungus plant, usually a thread-like mould growing through soil, wood or decaying plant matter, is not often observed by the layman.) The fruiting bodies which spring up after a rain are merely the spore-bearing parts, which will mature, discharge their spores, and decay, leaving the fungus plant alive and thriving in the substrate.

IS IT A POLYPORE? If so, it will be tough, leathery or woody, the undersurface covered with a layer of minute pores through which the spores are shed. Most of our polypores grow shelving out from the sides of trees and logs, some may be stalked, and a few are found on the ground. The large mahogany-coloured bracket fungus that grows on hemlock stumps and appears to be freshly varnished is a familiar polypore.



IS IT A MUSHROOM? Most mushrooms are soft and fleshy (in contrast to the woody polypores) and decay rapidly after discharging spores. The majority are umbrella-shaped, but there are also some that are shelving or funnel-shaped. All, however, are characterized by the presence on the undersurface of "gills" which radiate, spoke-like, to the edge of the cap. Deadly poisonous as well as deliciously edible varieties abound in our woods, so do not experiment.

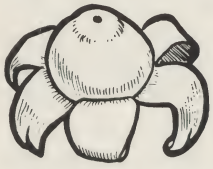
IS IT A BOLETE? If so, it will be umbrella-shaped, fleshy rather than woody, with the undersurface covered with a layer of tubes from which the spores are shed. The cap may be scaly, smooth or velvety, sticky, dry or slimy, and the colours range over a variety of yellows, wines, browns, greys, etc. Most boletes grow on the ground, and decay rapidly after maturity.

A HYDNUM? The hydnum bear their spores on a surface of spiny "teeth" rather than within tubes or pores. They assume various shapes and forms, but the one most likely to be encountered in our woods is the stalked, umbrella-shaped Hydnum repandum, which is pale pinkish tan in colour. (Sorry..it has no common name!)

OR A CUP FUNGUS? Cup-shaped or saucer-shaped and fleshy in consistency, the cup fungi include those minute yellow discs that grow on decaying logs, the beautiful Scarlet Cup found in the woods in very early spring, and the gay Orange Cup that sometimes decorates large patches of ground in the fall. The stalked forms, because of their goblet shape, have an especial charm.

IS IT A PUFFBALL? Cut it in half to be certain. The true puffball is a homogeneous mass within, and shows no signs of cap, stem, or other parts forming inside the ball-shaped structure. (Other fungi, some poisonous, send up fruit-bodies that superficially resemble puffballs, until the structure grows enough to burst from its puffball-like case.) Any true puffball is edible if it is solid and white within. When the developing spores begin to tinge the flesh with colour, it is beyond the eating stage. At maturity, the interior of the ball is filled with thousands of minute spores which discharge in smoke-like puffs into the air.

OR AN EARTHSTAR? An earthstar is a kind of puffball with a double coat. The outer coat splits into segments that spread out into a star-shaped base beneath the central ball, which remains intact to enclose the maturing spores.



A CORAL FUNGUS? Beautiful branching coral-like growths or fleshy finger-like projections, the coral fungi, or club fungi, may range in colour from bright oranges and yellows to pure white, smoky grey or tan. Look for them on the ground, or on decaying plant matter in the woods.

A number of handbooks on fungi are available in libraries and local bookstores, including one by former club president, Dr. J.W. Groves, Edible and Poisonous Mushrooms of Canada (Queen's Printer). For a very inexpensive starter, with excellent illustrations for beginners, try The Golden Nature Guide to Non-Flowering Plants, $1.35. For the rank beginner, however, nothing is quite so helpful in getting to know some of the fungi as a field trip or two with a knowlegeable leader.

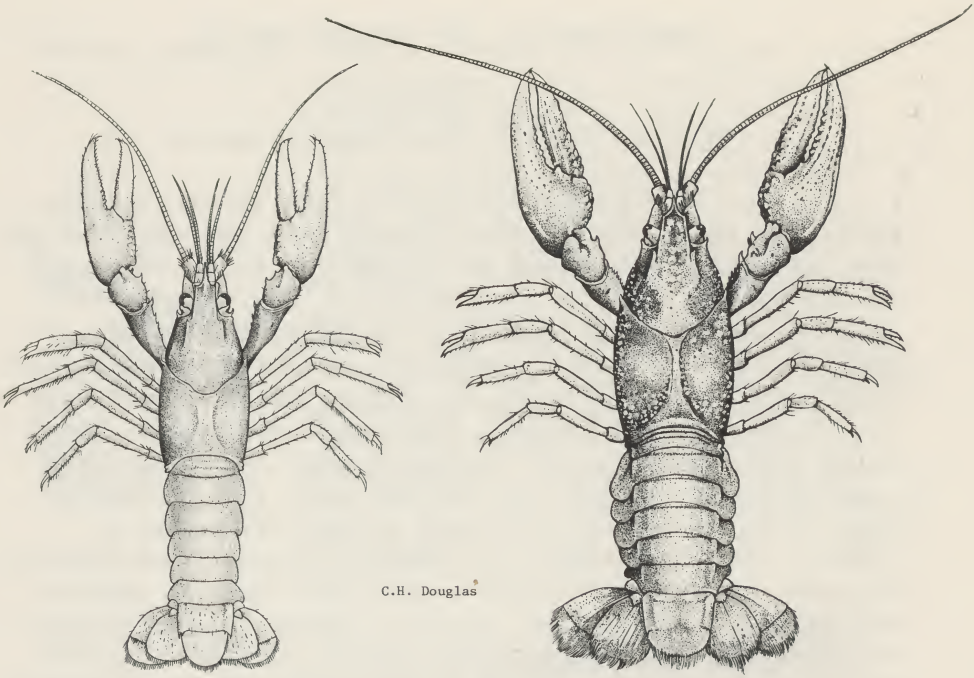
CRAYFISHES OF THE OTTAWA REGION

E. L. Bousfield
National Museum of Natural Sciences

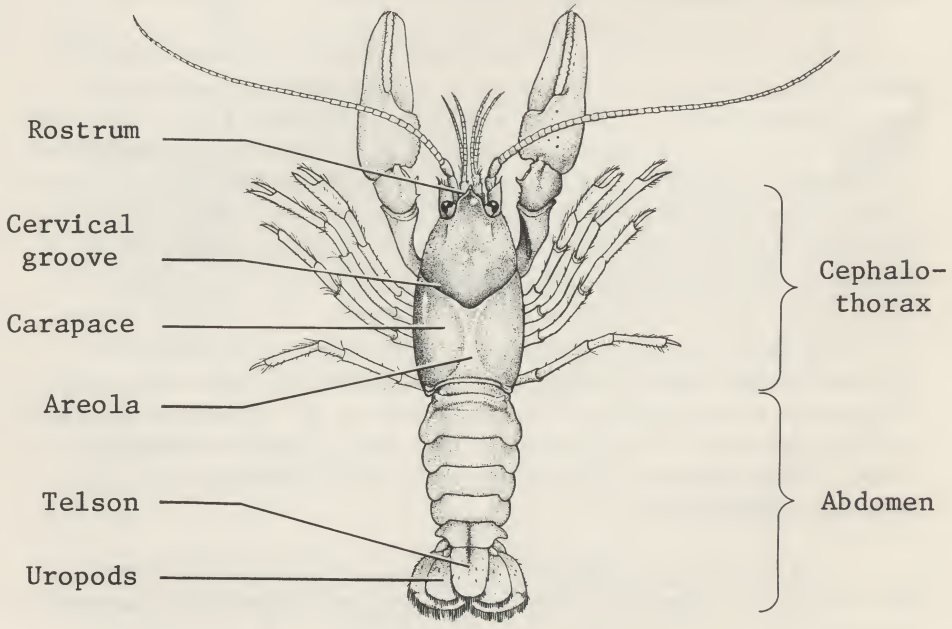
It is the rare naturalist who has never encountered the large shrimp-like crustaceans called crayfish that inhabit the bottoms of streams, rivers, and lakes of the Ottawa region. To most of us the encounter is usually chancy but exciting -- an overturned stone, a quick violent splash of activity, a startled shout, and a puff of muddy debris as the animal darts quickly to the shelter of the nearest crevice or weed bed. Many of us know that these crustaceans make ideal bait for bass fishing, but may not realize that they form a major item in the diet of many of our fresh-water fishes, certain mammals (raccoons), birds (kingfishers), reptiles (snapping turtles), and even aquatic insects (giant water bugs). As food for humans, the crayfish has long been an esteemed delicacy in northern Europe and in the southern United States, and the local Ottawa species, although not particularly palatable, were formerly consumed by the native Indian tribes.

Crayfishes are a relatively primitive and unspecialized group of crustaceans. The body is serially segmented, bears jointed limbs of various structure and function, and is encased in a rigid cuticle or external skeleton to which the internal body muscles are attached. Like other arthropods (to which insects, spiders, centipedes and millipedes belong) the crayfish grows by a process called moulting. The cuticle splits down the back, the soft-bodied animal emerges, swells in size, and the new cuticle hardens. The cast skin (exuvia) is sometimes seen lying on the stream bottom, but more often it is eaten by the crayfish or by other organisms. Unlike insects or spiders which have single-stemmed legs, crustaceans have primarily two-branched or biramous appendages.

The body is composed of head, thorax and abdomen. The head and thorax together form an externally unsegmented unit called the cephalothorax. It is covered by a hard horny carapace that is fused directly to the head region and is produced forward between the eyes



(a) Orconectes propinquus (b) Orconectes virilis



(c) Cambarus bartoni

Fig. 1 CRAYFISHES OF THE OTTAWA REGION, dorsal view about 1 1/2 natural size

as a pointed prow or rostrum. Back of the head, marked off by a transverse line called the cervical groove, the carapace forms a double-walled shield over the gills (branchiae) that arise from the bases of the walking legs. On the upper surface of the hind part of the carapace is a lengthwise hour-glass shaped area termed the areola, the outer lines of which mark the upper limit of the two gill chambers (fig. 1).

The head bears a pair of movable stalked eyes and two pairs of sensory antennae. The first pair is short and has two terminal filaments (flagellae). The second has a single long heavy flagellum and a short flat bladelike extension (antennal scale) of its basal segment. The head also bears (on the underside) three pairs of mouthparts; the heavy chewing mandibles on either side of the mouth, and immediately rearward, two pairs of thin flat maxillae.

The thorax bears eight pairs of appendages. The first three pairs are small and modified as mouthparts (maxillipeds). The posterior five pairs are large and are termed peraeopods. The first of these (the great chelipeds) are very large and powerful and are used in burrowing, tearing up large food particles, holding the female during copulation, and in defence. The last four pairs of legs are more slender, shorter and are used in walking. The first two of these are equipped with pincers (the small chelipeds) which are used in cleaning the body and in feeding. All legs can be broken off near the base (autotomized) to enable the animal to escape from a predator; a lost limb is regenerated during successive moults.

In the male, the inner side of the third segment of the 2nd walking legs bears a strong hook that assists in holding the female during mating. The sperm ducts open on the inner surface of the basal segments of the last pair of walking legs (fig. 2a).

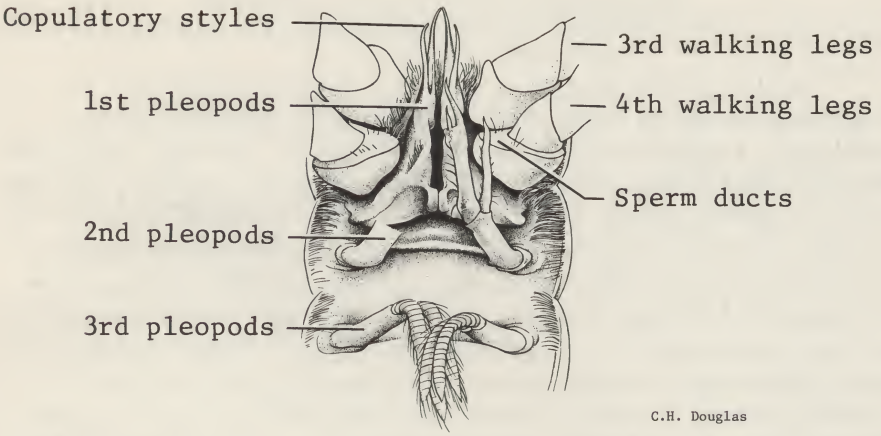
In the female, the oviducts open on the inner face of the basal segment of the 2nd pair of walking legs (fig. 2b). The oval-shaped seminal receptacle (for sperm storage prior to fertilization) is located on the mid-ventral (under) surface between the last two pairs of walking legs.

The abdomen consists of six distinct segments. Each is covered by a hard convex upper cuticle (tergum) and a narrow concave lower cuticle (sternum). These plates are connected by tough flexible membranes. Each of the first five segments bears, on the under surface, a pair of slender, biramous swimmerets or pleopods. The last segment bears laterally a pair of broadened paddle-like uropods, and a central terminal piece, the telson. Together these form the powerful tail fan by means of which the animal can swim rapidly backwards. The anus or vent is located on the underside of the telson.

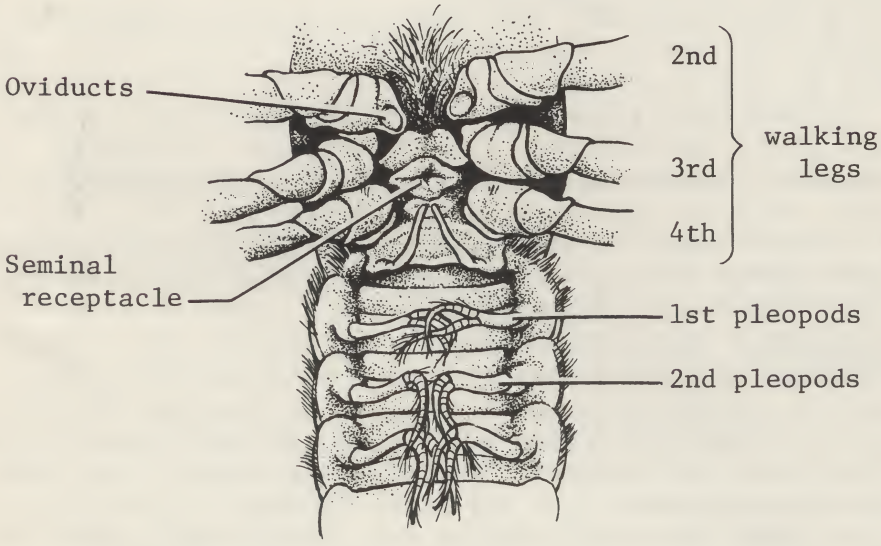
In the female the pleopods are undifferentiated, except the first pair which is one-branched or uniramous (fig. 2b). By regular fanning movements the pleopods assist in keeping water circulating in the vicinity of the gills. To the pleopods are attached the incubating eggs (the "berried" condition) and the newly hatched young crayfish during their first two or three life stages.

In the male, the first two pairs of pleopods are modified for the purpose of sperm transfer during copulation (fig 2a). The tips of the two branches (copulatory styles) of the first pair are either elongate or bent at right angles to the main axis. These form the most important single character used in formal textbooks on the identification of crayfish species of North America. However, their importance has been overstressed by some crayfish taxonomists to the point of overlooking many other specifically diagnostic characters that are sex-independent, more easily seen, and thus more useful to the amateur.

Three species of crayfishes occur locally. Lacking official English or French names, we are obliged to use the scientific (Latin) names even in non-scientific presentation! Two species are members of the genus Orconectes (which means "barrel-shaped swimmer"). These have a more or less cylindrical carapace; the rostrum bears lateral marginal spines near the tip, and the male copulatory styles are slender and straight (fig. 2a). The other species belongs to the genus Cambarus (which means "a sea crab") in which the carapace is flattened from top to bottom or compressed from side to side; the rostrum lacks lateral marginal spines, and the tips of the male copulatory styles are short and thick and bent at a 90^{o} angle to the main axis.



(a) Male (Orconectes virilis)



(b) Female (Orconectes virilis)

Figure 2. EXTERNAL SEXUAL CHARACTERS OF THE CRAYFISH
About 1 1/2 natural size

References

Crocker, D.W., and D.W. Barr, 1968. Handbook of Crayfishes of Ontario. U. of Toronto Press, 159 pp.

Huntsman, A.G., 1915. The fresh-water Malacostraca of Ontario. Contr. Can. Biol. 191-14: 145-163.

Orconectes propinquus (Girard) Fig. 1a
(propinquus L.: "related to another")

This is the smallest of the Ottawa species, reaching a total body length of about $3\frac{1}{2}$ inches, and a carapace length of about 1 3/4 inches. It is readily distinguished from the larger Orconectes virilis by the following characters:

Chelipeds or large claws are proportionately much larger, and the inner (medial) margin of the hand (at base of the movable finger) is long and straight, not convex.

Eyes are relatively large, with the facet (lens) area bulging slightly wider than the peduncle or stalk.

Rostrum is parallel-sided and the apex or tip has a low median ridge or keel, most noticeable in mature males.

Areola of the carapace is more than half as wide as the rostrum, as seen from above.

Walking legs relatively long and slender, with segment 6 nearly as long as segment 4.

Telson as long as broad.

In mature (breeding) males, the copulatory styles are short, not elongate and very slender. In mature females, the seminal receptacle is diamond-shaped and only slightly depressed in the middle.

The colour in life is a bluish brown, often spotted with darker brown. The large claws are bluish or bluish gray tipped with light orange.

Distribution: Occurs commonly throughout the Great Lakes drainage system (except for upper L. Superior region) and in arctic drainages flowing into James Bay. Moderately common in riffles and rapids and lake shores of the Ottawa R. (Bates I., Britannia Bay) and in its tributaries northward into the Quebec Shield. Also occurs throughout the Rideau system (e.g. below Hog's Back).

Ecology: Constructs shallow burrows under flat stones in open water along lake shores or in riffles of streams and larger rivers. Common in rocky or stony, clear-water bodies, but rare in mud, silt or very turbid waters. An omnivorous or very generalized feeder, taking both plant and animal matter, living or dead.

Life history: Mating occurs from mid-July to October. The eggs are laid the following spring, from late April to early June, and hatch from mid-May to mid-July. The young reach maturity by September and may mate in October. First-year individuals may thus produce a brood during the second spring, but very few live beyond the second year.

Orconectes virilis (Hagen) Fig. 1b
(virilis L.: "man-like")

This is the largest of the Ottawa species and may reach an overall length of about 5 inches or a carapace length of $2\frac{1}{2}$ inches. According to the excellent account of Ontario crayfishes of Crocker and Barr (1968), this species is "basically olive brown, dappled with very dark brown. Walking legs and large chelae often distinctly bluish, tips of claws orange. Abdominal segments each with a pair of dark brown submedial spots". A beautiful light blue colour phase has been noted among populations of this species in the Rideau system near Rideau Ferry P.O. The species is readily identified by the following characters:

Rostrum tapers toward apex, lateral spines acute, pronounced.

Large chelipeds - inner margin of the immovable hand is short and convex, not straight.

Inner face of first pair of small chelipeds is lightly setose, (not stiffly setose and bristle-like as in O. immunis).

Areola is narrow, less than $\frac{1}{4}$ width of rostrum.

Hinder walking legs are relatively short; segment 6 is shorter than segment 4.

Telson is much broader than long, the outer portion short.

In breeding males, the copulatory styles are very elongate, slender, and straight (fig 2a). In mature females, the seminal receptacle is more oval in shape, and the central fossa or pit is very deep and transverse (fig. 2b).

Distribution: The most common and widely distributed species in Canada. Ranges from western Quebec throughout Ontario (including James Bay drainages) to southern Manitoba, Saskatchewan and eastern Alberta...Very common in both the Ottawa and Rideau rivers and in the Rideau Canal but rare in the small tributary streams.

Ecology: Constructs shallow burrows under rocks in larger streams and rivers and along wave-exposed lake shores. Also common in quiet, less transparent, and siltier portions of rivers, and often at fair depths in lakes. A generalized feeder like O. propinquus.

Life history: Mating occurs in two distinct periods: from August to October and from April to May. The eggs are laid from mid-May to mid-June and are carried for several weeks. The young become mature during the second summer. They reproduce again during the third year, but all probably die by the end of the fourth year.

Cambarus bartoni (Fabricius)
(Barton's Crayfish)

Fig. 1c

This is a medium-sized crayfish, reaching an overall length of about 4 inches and a carapace length of about 2 inches. The colour in life is a more or less rich brown above, and light yellowish-brown beneath.

This species is readily distinguished from the two species of Orconectes by the generic characters above (p 122) particularly in the relatively short and blunt rostrum that lacks lateral spines. The antennules (paired first antennae) are also much shorter. The following characters are also useful:

Eyes small, short, scarcely projecting beyond body outline.

Antennal scale is short, not reaching the outer segment of the antennal peduncle.

Inner margin of the immovable hand of the large chelipeds is convex, and its near corner forms a distinct rounded lobe.

Telson is longer than wide, the distal section about equal in length to the proximal.

Hinder walking legs are stout, segment 6 is shorter than 4.

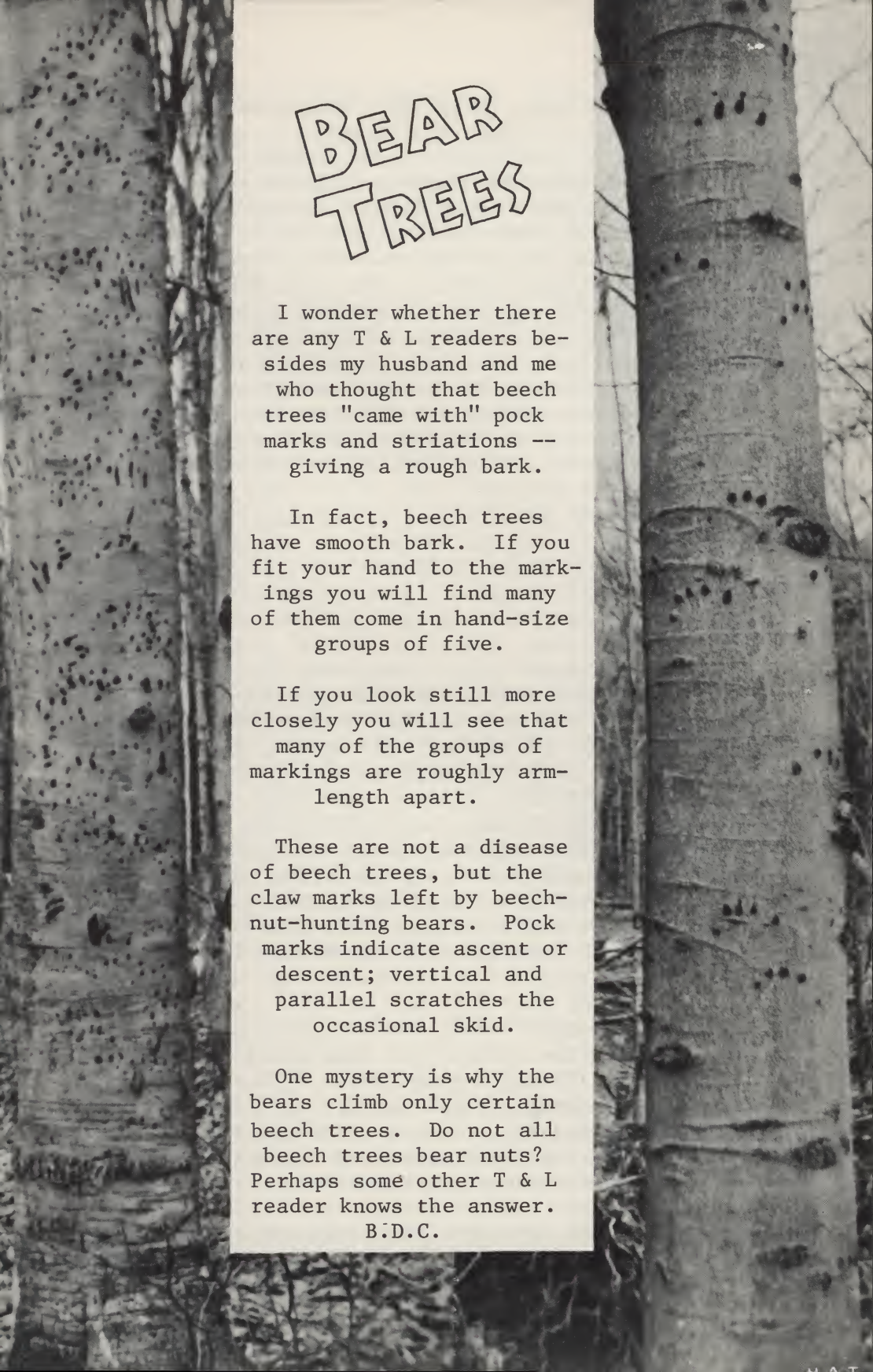
Uropod branches are about as long as wide, forming (with telson) a relatively narrow tail fan.

In mature males the copulatory styles are short and thick and the two terminal elements curve abruptly toward the tail at an angle of 90° to the main axis. In mature females, the seminal receptacle is generally oval in outline, with the deep fossa displaced either to left or right of centre.

Distribution: An American-Atlantic coastal drainage species, ranging northward to Maine, New Brunswick, southeastern Quebec; presumably spread in postglacial times throughout the Ottawa R., and Ontario tributaries of the Great Lakes region; also recorded from drainages of James Bay. Least common species in the Ottawa region; taken in riffles and rapids in Ottawa R. (Bate I.), Rideau R. (below Hog's Back) and in smaller streams and lake shores of the Gatineau Hills, but rarely in Rideau Canal.

Ecology: Hides (rarely burrows) under flat stones, usually in rapidly flowing waters that are cool in summer. Dominant in smaller, steeper, clear-water tributary streams. Essentially carnivorous, feeding mainly on insect nymphs and larvae.

Life history: This species apparently breeds throughout the summer with no restricted time of mating, egg laying and hatching. A few animals may survive into the third year.



BEAR TREES

I wonder whether there are any T & L readers besides my husband and me who thought that beech trees "came with" pock marks and striations -- giving a rough bark.

In fact, beech trees have smooth bark. If you fit your hand to the markings you will find many of them come in hand-size groups of five.

If you look still more closely you will see that many of the groups of markings are roughly arm-length apart.

These are not a disease of beech trees, but the claw marks left by beechnut-hunting bears. Pock marks indicate ascent or descent; vertical and parallel scratches the occasional skid.

One mystery is why the bears climb only certain beech trees. Do not all beech trees bear nuts? Perhaps some other T & L reader knows the answer.

B.D.C.

Explorer's Corner: THE PAUGAN FALLS by June Roots

This short excursion to the Paugan Falls is not in any way unique for its bird or plant life; but as an example of the erosive force of a swift river, now tamed, the falls are well worth a visit. Take Highway 11 north to Low, 33 miles from Ottawa. After crossing the train tracks at Low, take the right fork, marked Martindale, to the Paugan Inn. Immediately beside the Paugan Inn (where, incidentally, excellent meals may be had) there is a road flanked by wire gates marking the property of the Gatineau Power Company. This is private property, but except when repairs are being carried out on the dam, there is free access. Follow this road, taking the left or upper fork to cross over the two dams, and park in the clearing beyond the second dam.

The Paugan Falls originally were at a point where the Gatineau River cut a channel along the contact between the white coarse-grained marble and the dark brown quartz-mica gneiss, laced by dykes of pegmatite. These rocks are of the Grenville formation of which most of the Gatineau Hills are composed. The different erosion qualities of the two rock types - the softer, but more evenly worn marble, against the harder, but brittle gneiss, which shatters along vertical planes - is well shown on either side of the basin. Some idea of the force of the water may be gathered from the huge water-smoothed boulders lying in the now dry river bed. This is one of the few places in the Ottawa region where there is a large area of exposed rock, completely clear of vegetation, where banding and intrusions may be seen. The total drop from the lake above down to the river is just 150 feet.

From the east end of the dam, several paths lead through the woods overlooking the dry falls, passing behind a tiny wooden lookout hut. Here a man, for the past fourteen years - when last we talked to him - has sat from 7 a.m. to 4 p.m. just watching the progress of the logs down the chute, giving a warning shout should a rare but disruptive jam take place.

A scramble down the rocks from the woods into the bed of the old falls is well worth the effort, and re-

warding for the mineral collector. Large crystals of blue-green apatite embedded in coarse calcite may be found in the broken rock at the edge of the higher cliff. The pegmatites contain crystals of pinkish feldspar, yellow diopside, green amphibolite and red garnet. There is the glistening of fool's gold - pyrite crystals - in large cubes, and fuzzy growths of marcasite in the smooth bed rock lower down. Here, too, are examples of bourdin formation, coarse crystal quartz intrusions strung in the surrounding pegmatite like a cross section of a string of huge beads, with the black and white banding of the gneiss flowing smoothly and gracefully around them. In the early spring the small pools are filled with the tinkle of melting candle ice, whilst later the shallow hollows are alive with tadpoles.

In our family however, though the geological element is part of the fascination of the Paugan Falls, the real delight is in the log chute. To see this in operation, one must be there between 7 a.m. and 4 p.m. on weekdays, or before 12 noon on Saturdays.

Here, if you have ever lazily dropped two pieces of wood from a bridge into a slow-moving stream and idly watched to see which came through first on the other side, is the game of Pooh Sticks quite beyond the wildest dreams of Piglet. The log chute carries the logs from the reservoir above the dam for 500 yards downstream along the contour lines, to the top of the bluff above where the Gatineau River emerges, below the dam, in a small swirling lake. The logs, jumbling and tumbling along the six-foot wide, seven-foot deep chute, plunge steeply down the hillside into the lake, and emerge from the seething water, upended and poised, like a giants' game of spillikens. Then, in a stately whirlpool, they float to the east side of the lake, there to begin their journey down the river to the paper mills at Gatineau.

To reach the foot of the log chute, one must cross the old river bed, with no hindrances other than a few long strides across the streams coming from the hillside. Then follow the lake edge, staying well below the splash, and keeping watch for an occasional truant log toppling from the chute above. It is a good place to eat a sandwich, and on a summer's evening, with a liberal coating of OFF on, makes an ideally peaceful picnic scene.

BIRDS OF THE SPRING, OTTAWA, 1969 F.M. Brigham

As is the case in recent years, spring came late with below-normal temperatures. This did have an effect on the spring movements of migratory birds as a whole, but on the other hand representative species were recorded here as much as two weeks earlier than the average arrival date, over the years. This is perhaps due to an increase of enthusiasm on the part of birders in the Ottawa district that hasn't been equalled in the last hundred years. This brings to mind the comment W.T. Macoun made in The Ottawa Naturalist of 1899, "Are boys becoming lazy and has the bicycle greater charms than the woods?" If only Macoun were alive today, he could hear teenage boys discussing the breeding range of White-necked Ravens, or the first occurrence of San Blas Jay in Arizona. In fact, one reckless youth pursued a calling Long-eared Owl at night in pouring rain hoping to use a spotlight on it, only to have his car stuck in mud for three days! (He never did see the owl.)

For the first time, The Ottawa Field-Naturalists' Club conducted a census on the Victoria Day weekend with a group of 15 participants covering the area within a thirty-mile radius of the War Memorial in a 24-hour period. A count of 14,136 individuals and 168 species for the day produced a record count.

A summary of bird observations by groups follows:

Herons A Black-crowned Night Heron was heard calling as it flew overhead in the vicinity of Mud Pond May 11th. In addition, one Least Bittern could be heard calling from Shirley's Creek May 18, and again May 25. The highlight came May 9, when a Cattle Egret appeared across the street from the home of D. Findlay in Carleton Place. There is but a handful of records for the Ottawa area for this species.

Swans, Geese and Ducks This family was represented by some very interesting finds. One Whistling Swan appeared at Shirley Bay April 19 and stayed a week. Thirty-five Brant were seen May 18 flying upstream at Lake Deschenes. Snow Geese were recorded several times, with a flock of 32 at Vincent Massey May 8, an unusually large flock

for this area. On May 3, a pair of Gadwalls lingered at Shirley Bay. Then on May 4, in addition to this pair, a lone bird dropped in at the sewage settling pools near Almonte. A total of 24 species of waterfowl were recorded this spring, which is perhaps more than any other season in Ottawa.

Shorebirds With above-normal precipitation for the month of May, many flooded fields and river shores afforded what would appear to be good feeding areas. Ruddy Turnstone, which was considered accidental by Hoyes Lloyd (1944), is a species appearing fairly regularly in the district in recent years. Five birds at Shirley Bay May 25 is considered a good number. Pectoral Sandpiper, a bird Peterson indicates as a rare migrant in eastern North America during spring, showed up 12-strong near Carlsbad Springs. Another rare bird, Short-billed Dowitcher, flew into view at Almonte May 18, and another was seen June 1, near Kemptville. Furthermore, a pair of Northern Phalaropes dabbled in the sewage pool near Almonte on May 25.

Gulls and Terns Although there were no reports of "white-winged gulls" for this spring, there was one interesting report...a lone Caspian Tern flying over the rapids at Deschenes. This tern, which is common locally on the Great Lakes, is seen perhaps once in five years around Ottawa.

Owls As the result of field preparation for the "May run", one very important fact with regard to abundance of certain nocturnal birds was made. The Saw-whet Owl may well be our most abundant owl! A total of 12 individual owls were heard calling about midnight in the explored cedar swamps west of the Rideau River, south of the Ottawa, within the circumference of the area. These birds which breed later than their larger cousins seem to be very active in May and the early part of June. An additional find of the owl survey conducted in May, 2 Long-eared Owls were heard in the same area.

Warblers On May 18, a record number of 25 species of warblers were tabulated by OFNC members. Included in the list were 4 Golden-winged Warblers and 8 Orange-crowned Warblers. Three of the Golden-wings were reported from the Ramsayville area, and one from "East

Quebec" area. One other unexpected warbler appeared in the backyard of an Alta Vista resident around May 20: the Yellow-breasted Chat has been recorded in Ottawa fewer than half a dozen times, and would have been an excellent addition to the May 18 list.

Sparrows, Buntings and Grosbeaks Henslow's Sparrow, a species that nests in loose colonies, is apparently more abundant in certain years than in others. A colony appeared at Shirley Bay with a maximum count of 5 singing birds at one time. The LeConte's Sparrow seen by several competent OFNC members is the latest bird to be added to the Ottawa list. This is by far one of the best finds this year. It was observed May 3 in a swamp off Moodie Drive. Other good finds included an Oregon Junco carefully observed twice at Vincent Massey Park, and Lincoln's Sparrow recorded in April, about one month earlier than average arrival date.

In May of 1897, members recorded in The Ottawa Naturalist a list of 41 species for the month. In May of 1969, members of The Ottawa Field-Naturalists' Club recorded 197 species. Interest and enthusiasm in birding has certainly come a long way.

NOTE: A list of the birds observed on the record-breaking "May run" may be obtained from the Treasurer, F. M. Brigham, Box 3264, Postal Station C, Ottawa 3.

..... Coming Events, continued

Saturday 18 October ALGAE, AND OTHER LOWLY ORGANISMS
Come and fish some plankton out of the Rideau Canal, and then see if you can identify it in the University labs....!
Leader : Bill Illman
Meet : Hartwell Locks, Carleton University; 9 a.m.

Saturday 25 October DUCKS : OTTAWA RIVER AND ALMONTE
Leader : Monty Brigham
Meet : Ottawa Beach; 7:30 a.m.

THE SEED SOWING SESSION WILL BE HELD IN EARLY NOVEMBER
Watch for announcement in Nov.- Dec. issue.

O F N C COMING EVENTS

arranged by the Excursions and Lectures Committee;
T. J. Cole, Chairman

Sunday 7 September THE BIRDS OF AYLMER
Leader: John Dubois
Meet: Glenwood Shopping Centre, Aylmer; 7 a.m.

Sunday 14 September FALL MIGRATION OF WARBLERS
Leader: Monty Brigham
Meet: Shirley Bay Restaurant; 6 a.m.

Sunday 21 September FITZROY HARBOUR PROVINCIAL PARK
A general interest walk covering many aspects of nature from robins to rocks.
Leaders: various, for the different interests pursued
Meet: Health & Welfare Bldg. at 9 a.m. OR
Fitzroy Park (Camp Office) at 10 a.m.
Bring a lunch. As the Park will be officially closed by this date, no entrance fee is required.

Saturday 27 September MUSHROOMS, BOLETES & OTHER FUNGI
(or, How to do in your mother-in-law in one easy lesson)
Leader: Sheila Thomson
Meet: Health & Welfare Bldg. at 9 a.m.
Lunch optional (but don't nibble on the specimens!)
If you intend to collect, bring a roll of waxed paper and a basket. Books for reference: see page 118.

Sunday 5 October SOUTH MARCH DUMP (area)
An outing similar to the Thursday Evening Walks in May, where anything and everything is of interest.
Leaders: Ron Pittaway, Pat Narraway
Meet: Health & Welfare Bldg. at 8 a.m.

Tuesday 7 October GENERAL MEETING: MEMBERS' FORUM
"The Role of Naturalists in Conservation Today", a brief talk first by Dr. Ted Mosquin. Then we'll hear your views. With pollution of area rivers, and the DDT controversy, there should be plenty to discuss. Come and speak out! Here is your opportunity to give vital direction to your club. Let us know what YOU think the OFNC should be doing.
Place: National Library Auditorium, Wellington St.
Time: 8 p.m.

TRAIL & LANDSCAPE

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